

## **SCENARIO PLANNING DEVELOPMENT FOR PT. KRAKATAU STEEL**

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*Abstract— The current business environment showing trends of many factors that relating to steel industry has dynamic changes that cannot be predicted only with linear forecasting method. Some of these, especially in external factors like political, economical, social, environmental, and technological has its impact and their level of uncertainties. The study objective is to develop scenarios to give an overview of the future market situation in Indonesian steel industry and all driving forces that have an impact to this industrial sector then used it as a tool to make any strategic decision for PT Krakatau Steel. As a leader in domestic steel market, PT Krakatau Steel, a State Own Enterprise steel company, now began to expand their business by making several strategic projects which marked with their decision to be a public company in 2010. With their momentum to prepare the future business environment, a study was conducted in PT Krakatau Steel in 2012 to analyzed their business issues and seek the major driving forces that have the most impact with high level of uncertainty to the firm. Three critical driving forces has been found as the axes of the uncertainty matrix in scenario planning, which is global steel price, government support, and realization of national economic development plans. By having scenarios, the firm can see both implications and options in future situation and aligned it with corporate strategic road map with monitoring process to see the shift of each scenario in their early warning signs.*

*Keywords: Scenario Planning, Strategic Decision Making, Steel Industry, PT Krakatau Steel.*

### **I. INTRODUCTION**

Steel industry as strategic industry has many external factors that interrelated and influence the direction of the industry, which more complex than before. To meet the challenges of this changing business environment, firms are now required to increase their sensibility by taking uncertainty in their strategic planning to prepare the future possibilities.

Today, the transformation of steel industry is creating tight competition among its players. According to Mytton (1997), Akmaludin (2001) stated there are three intertwining trends are responsible for revolutionizing the steel industry and introducing competition to much greater extent than has been seen before. Those trends are technological change, privatization, and liberalization of markets. There are also changes in the quality levels and customers expectation.

Nowadays, Indonesian steel consumption is still behind the ASEAN countries. In 2008, Indonesia steel consumption per capita is 50.8 kg, behind Vietnam (97.8 kg), Thailand (248.0 kg), Malaysia (375.3 kg) and way far from Singapore which has steel use per capita is 917.1 kg (World Steel Association, 2011). But behind these facts, there is a faith that Indonesian steel market will be increasing aligns with the national economic growth and it has a big opportunity for domestic steel producers from the escalation of steel consumption in Indonesian future market.

Established in 1970 by the Government of Indonesian Republic from Trikora Iron Steel Project, PT Krakatau Steel (PT KS) is the integrated steel company in Indonesia, which produces semi-finished products from upstream into downstream process, including: sponge iron in iron making process; steel billets and steel slabs in steel making process; and wire rods, hot rolled coil, cold rolled coil and plate in rolling process. In the period of year 1970 – 2010, the production capacity of PT Krakatau Steel is 2.5 million tons/year with nine subsidiaries to support the main production activities.

Having a long history in steel industry and a strong position in domestic market give an advantage to PT KS as a steel industry player to dominate the Indonesian market, but those achievements is mostly came due to privileges obtained by PT KS as a state-owned company in which the government provides a large initial capital initial investment to build the integrated steel facilities and a monopoly right at the beginning its establishment, so PT KS could develop its position as a domestic market leader.

PT Krakatau Steel certainly cannot expect the previous situation to be continuing and depending for the government's support to develop their business and survive in the business competition. With rapid changes and complexity in business environment, PT Krakatau Steel should implement a business strategy that can enhance the company's responsiveness, flexibility, and make a well adaptation to those changes. The external factors like economic sectors, technological development, natural resources, social, political, and cultural will be more complex and related to each other. With the high speed of change and high level of uncertainty, it will require the firm to start concern about making decision for long-term business

strategy in organization to responded all uncertainties and changes.

In 2010, PT KS is still the domestic market leader for flat products HRC (Hot Rolled Coil) and CRC (Cold Rolled Coil), with the market share of 65% for HRC and 33% for CRC, and the second market leader for Wire Rods, with a market share of 32% (KS, 2010). Realized that they still can't maximize the opportunity in domestic market, in 2010 PT KS began to revitalizing the existing production facilities, expanding the production capacity and improving their products range to catch up and meet the national steel consumption which nowadays has reached 11 tons/year and opportunities to increase both regional and international market share. Thus this study aim to create a scenario planning in domestic steel industry and linked it with PT KS internal sources, competencies and existing condition to make options with the several possible changes in the external environment taken from all the scenarios which have been developed by addressing these problems: (a) current issues related on company condition and strategic decision making or investment that have been made; (b) changes in business environment that will affect the industry direction; (c) critical forces and drivers that will influence the industry and business strategy; (d) possible scenarios in steel industry; (e) the implication of each scenario and the options that PT KS has.

As there are many range of future possibility, this research is limited on selecting two axes critical driving forces to serve as the logics and structure of the scenarios. The scenarios will be four narratives of future condition and completed by early warning signs, implications, and options of each scenario.

## II. BUSINESS ISSUE EXPLORATION

In current business situation, the firm's competitiveness is not only depending on how strong of what the firms have from the combination of their competencies, resources, supply chain, or system management that creating the firms competitive advantages, but it's gets into another level on the ability of the firm to adapt and response the changing environment and see both of opportunities and threats from it. The readiness and the flexibility of firms to respond its environment is the key to survive in volatile business situation in handle the new threats and seeking the opportunities to improve a better position. Lindgren & Bandhold (2009) emphasized two critical points as a success factor in fast moving and complex business environment which is speed response and variety to handle complexity through flexibility, adaptation, and resilience.

### A. Conceptual Framework

With nowadays business environment, which more complex, with rapid changes of external factors, and high level of uncertainty, it creates a challenge for the firms to make adaptation, increase their responsiveness, and be more flexible to answer of the future changes, trends, and issues.

The objective of this study is to identify steel industry environment by strategic tools that is scenario planning, then applied it to strategic road map, and comes to strategic decision making (Figure 1).

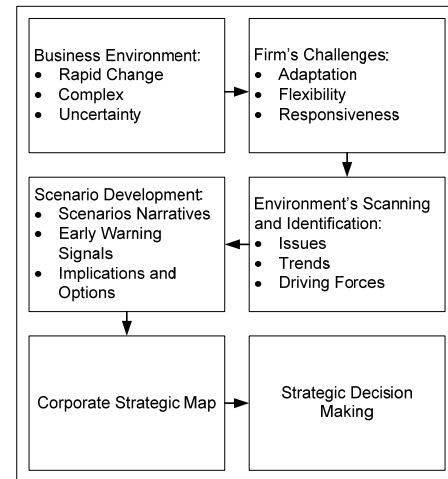


Figure 1 Conceptual Framework

### B. Method of Data Collection and Analysis

Primary data collection for building scenario planning has been collected through management questionnaires and interview as the individual who have the expertise in the steel industry. The primary data collection prepared in the two stages, the first is to get the focal issues and the axes of uncertainty as the basis of scenario planning creation; the second is to gain information for the early warning signals and implication of each scenario and take an analysis of options that should be taken for the firm.

In this research to analyze both data from interview and questionnaire in developing the impact and uncertainty matrix as the base frame for determining the scenario axes, it has been developed a rank system that attached in each level of impact and level of uncertainties. The rank system is based on importance and uncertainty degree. After ranked all the factors, the final data used will be the average value of each rank from all respondents for each factor.

The secondary data obtained from internal and external documents which have correlation with the research objective in scenario planning, such as strategic investment plan, marketing data, annual report, internal report, steel statistical report, world steel association, business and research journals, steel seminar proceedings, national economic development plan report, and other external documents.

The scenarios development in this research created by bringing together information from each respondent and data collection from analysis and observation of secondary data, in order to obtain the logic of scenarios. With the framework of scenarios development from the axes of uncertainty, this research then create a tabular comparison as the parameter of each scenario and directing the conditions of scenario narratives.

### C. Analysis of Business Situation

To identify business environment for PT KS in building scenario planning, has been collected information from general environment analysis, steel industry analysis, and internal analysis of PT KS. The general environment analysis consists an analysis in aspect of political, economical, social- environmental, and technological in steel industry. The industry analysis determines the position of PT KS in the middle of domestic steel industry. The aspect that analyzed in industry analysis is threat of new entrants, bargaining power of suppliers, bargaining power of buyers, threat of substitute's products, and intensity of rivalry among competitors. The internal analysis describes the resources, capabilities, value chain activities, current strategic decisions, business model and PT KS's value proposition alignment. The information and data analysis then will be references to identify focal issues, trends, and the driving forces in steel industry which has the high impact to PT KS with the high level of uncertainties.

### III. BUSINESS SOLUTION

The fact of the world is changing is a major challenge for the firms to enhance their response capability and aligning it with the corporate strategic planning, while no one can't predict accurately how the future environment will be and how the suitability of their strategic planning with the future conditions.

Some research has been developed how to create scenario planning in plausible future possibility as the base of strategic decision making. Mietzner and Reger (2005) described how scenario planning initially became a part of strategy planning, which in 1960s Herman Kahn is the first whom introduced scenario method for organizational planning in US military department in RAND Corporation. And then, the method is developed further by Royal Dutch Shell and Stanford Research Institute during 1970s.

Described by Schoemaker (1994), scenario planning has different characteristic that goes one step further than conventional planning like contingency planning, sensitivity analysis and computer simulation to capture the richness and the range of possibilities and stimulating decision makers to consider changes they would otherwise ignore. Those characteristics are: (1) scenario planning explore the joint impact of various uncertainties, which stand side by side as equals, not like contingency planning which examines only one uncertainty, (2) scenario planning changes several variables at a time without keeping others constant, not like sensitivity analysis that examine the effect of a change in one variable, keeping all other variable constant, (3) scenario planning include elements that were not or cannot be formally modeled in computer simulation, because scenarios can go beyond objective analyses to include subjective interpretations.

There are some approaches in the development of scenario planning; one of them is SRI (Stanford Research Institute) Model as show in Figure 2, which is an intuitive-logics approach. The intuitive-logic

approach is more focus on qualitative vision and logics in see the alternatives future, rather than focus on analytical simulation model detail in develops alternative scenarios. Ralston and Wilson (2006), emphasize three key elements in SRI Model as follow:

(1) Create decision focus and be more specific as to which aspect of the future concern us, and what use we intend to make of the information created by scenario.

(2) Identifying the axes of uncertainty from driving forces that have most impact to the organization and affecting the decision focus which we have less control to it and most uncertainty factors. Then figure it out the alternatives logics of how major driving forces could play out.

(3) The conclusion of the process comes not with the completion of the scenarios per se, but rather with the application of the implications to decision making under way

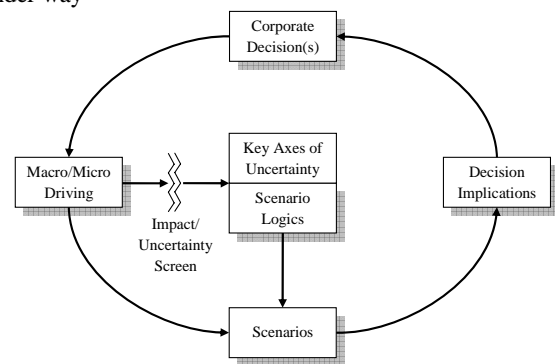


Figure 2 Scenario Development: The SRI Model  
(Ralston and Wilson, 2006:23)

Scenario planning is built from key focal issues which will be the key decision factors for the organizations to achieve the long term business objectives. Usually the issue is a significant, upcoming decision or a strategic uncertainty that has important, long-range consequences for the fortunes of the organization (Garvin and Levesque, 2006).

The next step after we get the focal issues and key decision factors is to analyze the forces and drivers that will determine the outcome for the key decision factors. According to Schwartz (1991), there are two factors that should be identified, first is key forces in the local environment, which called as micro-environment, such as customers, suppliers, competitors, etc., and second is the forces behind and influence the micro environment, such as social, political, environmental, and technological forces, which called as macro-environment.

After we get the focus in the most impacting forces with its high level of uncertainty, the next step is we select the decision-focused scenarios with two axes of uncertainty forces that have interrelationship logic.

Then after scenarios creation, we start to explore the early warning sign and implication of each scenario and what the option for the organization to anticipate that. Schwartz (1991) emphasized, the decision making

for the long-term business strategy that will taken should robust across all scenarios.

#### A. Focal Issues in PT Krakatau Steel

The focal issues for PT Krakatau Steel based on data collection are concluded in three main questions as:

- How PT Krakatau Steel can meet the future national steel demand and continuing the dominance in domestic market for flat products and improving its position in long products, while the competition is getting tight with the pressure of import products in the middle of volatile business environment?
- How the readiness of internal condition of PT Krakatau Steel in term of capacity production, technology, corporate organization, and management culture in facing global steel competition?
- How PT Krakatau Steel can establish a positive performance from strategic project implementation and mills revitalization that funded from Initial Public Offering?

Those focal issues will provide the decision focus for PT Krakatau Steel in the next 15 years (2013 – 2028) as the time horizon for the scenarios and be the decision focus for the firm.

#### B. Domestic Steel Industry Driving Forces Identification

The identification of driving forces in the macro-environment that influences the key decision factors for PT KS is showed on Table 1. The driving forces selection for the scenario planning development is those forces which take place in high-impact/high-uncertainty matrix. These are potential future driving forces that influence the scenarios for PT KS. This quadrant will be the scenarios logics with two or three forces taken as that most important and most uncertain factors.

Table 1. Impact and Uncertainties Matrix

Degree of Uncertainty			Level of Impact
Low	Medium	High	
<ul style="list-style-type: none"> <li>• Tariff barrier deregulation</li> <li>• Resource iron ore availability</li> <li>• Energy availability</li> <li>• Environmental issues</li> <li>• Consolidation of iron ore producers</li> <li>• Technological development</li> </ul>	<ul style="list-style-type: none"> <li>• China's economic condition</li> <li>• Steel scrap availability and price</li> <li>• Consumers strategic action to integrate backward into steel producers' industry</li> <li>• Consolidation of steel producers</li> <li>• Local trade deregulation</li> <li>• Free trade agreement</li> </ul>	<ul style="list-style-type: none"> <li>• Non-tariff barrier regulation</li> <li>• Government support</li> <li>• Global &amp; domestic political stability</li> <li>• Global &amp; domestic economic condition</li> <li>• Realization of national economic development plans</li> <li>• Steel Price</li> <li>• Energy price</li> <li>• Iron ore price</li> </ul>	High
<ul style="list-style-type: none"> <li>• Cost of logistic (transportation)</li> <li>• Time delivery of logistic</li> </ul>	<ul style="list-style-type: none"> <li>• India's economic condition</li> <li>• Technological advance of steel substitute products</li> </ul>	<ul style="list-style-type: none"> <li>• Steel producers strategic action to integrate forward into consumers' industry</li> </ul>	Medium
<ul style="list-style-type: none"> <li>• Customers behavior for steel application and substitute products</li> </ul>			Low

#### C. Scenario Logics in Domestic Steel Industry

The scenario logics in domestic steel industry derived from forces grouped in the upper right quadrant on Table 1. This research concluded that the

critical forces of uncertainties in future steel industry condition for PT Krakatau Steel clustered around three axes of uncertainty as follows:

- *The Global Steel Price.* Will the global steel price rise, or will it collapse? The global steel price will affect directly to PT Krakatau Steel's base price. A price disparity between domestic and global steel price will disturb the balance of domestic prices. The worse scenario is when the low global price, lead to high level of imports which commonly create an excess supply in domestic market and fall of the domestic steel price. If the global price is low and lower than production cost, it will give a big pressure to PT Krakatau Steel to sell their products following the market price.
- *The Government Support.* Will the government support to domestic steel producers show the positive actions, or will it response in negative supports. With the status of State Own Enterprise and the majority shares owned by government, any strategic decision will engage the government involvement. The government interest is depend on who is in power and how the Indonesian political situation. The government support of action will be: government subsidization including fiscal and incentives, tariff policy, protectionism, non-tariff barriers (import regulation, quotas, antidumping regulation), and others action to support the domestic steel industry.
- *National Economical Situation.* Will the national economic indicators will show a good and positive trends or economic growth is not achieved as expected and there is an economic downfall. National economic growth is linked with the realization of national development plans and domestic steel consumption. The future scenario of national economic situation is a critical in strategic planning, because the great impact of it. Commonly the economic parameter in strategic planning is created in stable and good economical situation as made by projection in traditional planning. But, when it turns to the unexpected events it will disturb the whole firm's strategy.

#### D. Scenario Narratives in Domestic Steel Industry

There are twelve possible scenarios from the three axes of uncertainties. However, this research focuses on elaborating only on four highlight scenarios to meet criteria of the critical area planning uncertainty for decision making system in PT Krakatau Steel could generate (Figure 3). The selection criteria of these axes of uncertainties are because this research wants to see the extreme possibilities of the combine of two forces.

The government support is combined with the realization of national economic development plan is due to the control for the forces is more likely the same, which is the government of Indonesia, while the global steel price is uncontrollable by the government of Indonesia.

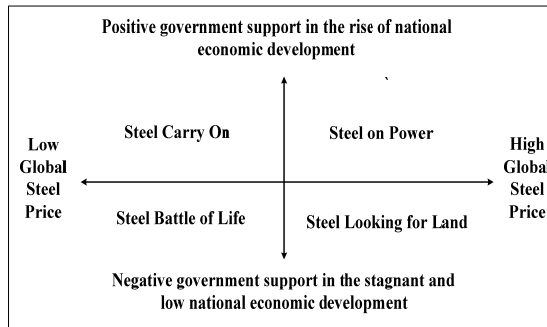


Figure 3 Steel Industry Scenario Matrix

- **Steel on Power.** A Positive government support for development of national steel industry in the rise of national economic development and realization of national development plans in the middle of high steel prices. So steel producers can develop and expand their business optimally around all the opportunities.
- **Steel Carry on.** A Positive government support in the rise of national economic development and realization of national development plans in the pressure of low global steel price. Government policy is taken to protect the domestic product in the invasion of import products and prioritize the use of domestic products in government projects.
- **Steel Looking for Land.** Lack of government support in the low national economic development and the failure of national development plans, but the global steel price is in the high level which means that steel demand in global market still in the positive trends. The national market can't absorb domestic steel products optimally, because of low domestic spending. There is an opportunities in regional market, as the Asian countries shows the positive national development trends and the increasing level of steel consumption.
- **Steel Battle of Life.** There is lack of government support in the low national economic development and the failure of national development plans in the pressure of low global steel price. Low demand of steel consumption will create excess national supply and this worsens because domestic producers have been expanding their capacity to anticipated leap in steel demand which is not happening. Imported steel products enter easily to satisfy consumers who starving for low prices and shift the position of struggling steel domestic producers.

#### E. Implications and Options for PT Krakatau Steel

From the scenarios that have been developed for PT Krakatau Steel, we can see both of opportunities and threat in any possible future from the creation of external forces. The scenarios give implications and

options for PT Krakatau Steel to develop their long-term strategic decision making as summarize in Figure 4.

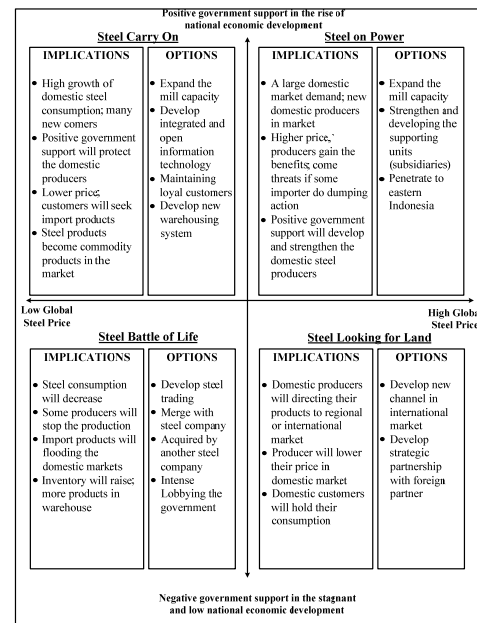


Figure 4 Implications and Options

The purpose of scenario planning is to prepare the firm for the entire possible scenarios situation that might come. The point is not to focus on single scenario or a group of options in that scenario, those options are the description of the possible strategic decision for the firm in particular scenario. Beyond of options that have been developed, PT Krakatau Steel should have strategic imperative for all scenarios. The strategic imperatives are expected will be a robust strategy for the firm to cover and response of all the implications in all scenarios creation.

The strategic imperatives that PT Krakatau Steel can take are:

(1) **Develop high skilled workforce.** PT Krakatau Steel should able to answer the challenge of generation gap within the organization and prepare the organization into future competition.

(2) **Revitalization strategy.** PT Krakatau Steel should continuing their strategy to revitalize their mill equipment and interfacing with newer technology to adjust their operation technology and create efficiency in process of production.

(3) **Supply chain management strategy.** Beside expanding capacity in order to meet national demands and revitalizing their mills in creating efficiency of the new process technology, they should strengthen the network of supply chain management. The option is to develop strategic relationship with suppliers in supply chain's circle, especially with raw material supplier like coal supplier, iron ore producers, steel scrap supplier, gas and electricity supplier. Some option that can be taken by PT Krakatau Steel is they can develop partnership with domestic coal supplier, because PT Krakatau Steel now is developing Blast Furnace facility that consumes coal as their production energy input.

(4) Strategic alliances. PT Krakatau Steel can make strategic alliance with related industries, like with other state own enterprises, involved in the government projects or strategic partnership with private companies that using products of PT Krakatau Steel. The alliance is prepared in long-term relationship that will increase the competitive advantage on both sides in term of the assurance of supply, price, and delivery time.

(5) Create Government Relation Division. With the status of State Own Enterprise, PT Krakatau Steel should maintain the good relationship with the government to give input and feedback about the domestic steel industry, especially how PT Krakatau Steel can contributing into the development of the nation.

#### IV. CONCLUSION AND IMPLEMENTATION PLAN

The ability to analyze trends and changes to see opportunities and threats in the future will give the company a competitive advantage in the competition. Scenario planning aims to enhance the ability of to respond quickly and effectively to a wide range of futures, avoiding potential traps and benefiting from potential opportunities.

There are many external factors that have a major influence on the steel industry that cannot be controlled and predicted. The challenges for the firm is to identify those factors, monitor them, and create a future possibility that attached in corporate strategic road map. The thing that needs to be done by PT Krakatau Steel is to increase their sensitivity to the changes of business environment and take preparation action as responses and to avoid lag behind its competitors.

As general, implementation plan that can be conducted by PT KS after developing scenario planning as their strategic planning tool in facing future's uncertainty is can be seen in Figure 5.

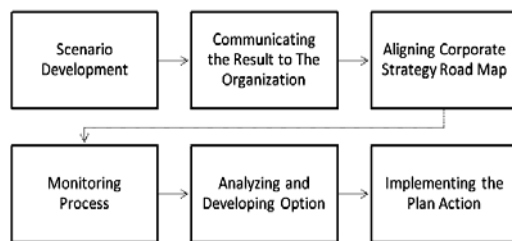


Figure 5 Implementation Plan

The time frame for the implementation is show in Table 2. Communicating the result of scenario planning is the longest time in the time frame. Because the scenario planning is about to changes the organization mindset how they should face the future possibilities and develop a proper preparations, responses, and actions. After that is to aligning the corporate strategic road map with the strategic imperatives that have been made to cover all the scenarios creation. With the focus on the scenarios development and result, the firms expected to go with this process within 2 months, because the environment is changing dynamically and in the rapid speed, the

firm should not late to take the decision focus. The monitoring process will be during the time horizon with the evaluation twice a year then analyzing the options have been made to reassure the match with current situation. The implementing plan action should be done always during the time horizon.

Table 2. Time Frame of Implementation Plan

Stages	Time
Communicating the Result to The Organization	4 Months
Aligning Corporate Strategy Road Map	2 Months
Monitoring Process	<ul style="list-style-type: none"> <li>During the time horizon</li> <li>Evaluation twice a year</li> </ul>
Analyzing and Developing Option	1 Months after evaluation's report
Implementing the Plan Action	During the time horizon

#### ACKNOWLEDGMENT

This paper is written based on the author's final project at ITB supervised by Dr. Yos Sunitiyoso. With his guidance the author accomplished the final project. Also thank to my parents, Daenulhay and Indira C. who always support and motivate me in my entire life.

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